sium hydroxide on aluminum sulphate have, however, led to the conclusion that the act is not entirely a mechanical one, but that it is a phenomena of strictly chemical nature. In the present paper the author has undertaken a study of the action in the case of iron hydroxide. While the results are not sufficient to definitely establish the nature of the action, they are inconsistent with the theory of mechanical inclusion and characteristic of chemical action. Reviews of the following books are also contained in this number of the journal:

'The Constants of Nature,' F. W. Clarke, Part V.; 'The Chemistry of Dairying,' N. Snyler; 'Inorganic Chemical Preparations,' F. H. Thorp; 'Traité Elementaire de Chimie,' Haller et Muller; 'The Principles and Practice of Agricultural Analysis,' H. W. Wiley, Vols. I., II. and III.; 'Vorlesungen über Bildung und Spaltung von Doppelsalzen,' J. H. Van't Hoff; 'An Outline of the Theory of Solutions and Its Results,' J. L. R. Morgan.

J. ELLIOTT GILPIN.

SOCIETIES AND ACADEMIES.

BIOLOGICAL SOCIETY OF WASHINGTON, 278TH MEETING, SATURDAY, MAY 22.

DR. ERWIN F. SMITH described 'A Bacterial Disease of Cruciferous Plants,' illustrating his remarks by means of drawings, diseased plants, and cultures of the organism on various media. The parasite is a yellow germ and is considered identical with that isolated by Professor L. H. Pammel from rotting turnips. Nearly all of Pammel's statements are confirmed, and much new information has been obtained concerning pathogenesis, symptomatology, host plants, manner of infection, thermal relations of the organism and its behavior in a variety of media. The organism was isolated from Maryland turnips and Wisconsin cabbages and a parallel series of cultures and experiments instituted. The following plants have been artifically infected: Cabbage, kale, cauliflower turnip, rape, black mustard, and radish. The dissemination of the disease is probably due in great measure to insects. It has been transmitted in the greenhouse from diseased to healthy plants by means of slugs (*Agriolimax agrestis*) and also by means of the common cabbage worm (larvæ of *Plusia brassicæ*). The organisms show a marked preference for the vascular system of the plants, and a blackening of the veins of the leaves and of the vascular bundles of the stem is a prominent symptom. The vessels become crowded so full of the germs that they may be said to be plugged solid. The interior of the turnip rots, and the cabbage loses many leaves and fails to produce any head. The disease is widespread and well known to market gardners. The organism is rod-shaped, motile, ærobic; it does not produce gas or acid; it liquefies gelatin; it grows rapidly at room temperature (20° to 26° C.), especially on potato. It grows feebly at blood heat, and will not grow in the thermostat at 40° C. The thermal death point is approximately 51° C. It produces a brown pigment when grown on slices of turnip, but not when cultivated on potato or in beef broth.

Dr. B. T. Galloway spoke on 'the Effects of Environment on Host and Parasite in certain Diseases of Plants.'

It was stated that plants in their growth and development are controlled by two sets of factors, namely, inherited disposition acting from within and external influences acting from without. Around these factors are centered many complicated phenomena, and the object of the paper was to call attention to some of these in their relation to certain physiological and pathological problems. The statements in the main refer to cultivated plants, for in dealing with them in questions, such as those under consideration, conclusions could not be drawn from the behavior of wild species, except in the most general way. In other words, one of the fundamental tenets of agricultural and horticultural practices is that the occurrence and behavior of native plants in any given region is not in itself sufficient evidence to prove that cultivated forms may be successfully grown there. Purely local conditions may make the difference bebetween success and failure in growing the crop, and the effects of these conditions must be determined by observations and experiments on the plant itself.

The effects of environment on the host and the possible changes in the life processes as a

result of changed conditions were pointed out. The effects of the same conditions on the parasite were also considered. Finally attention was called to the cumulative effects of the attacks of parasitic fungi and other organisms. It was shown in certain cases that when plants are attacked by fungi there is a temporary expenditure of vital energy, and as a result metabolic processes are brought about which may put the host in a more receptive condition for further attacks. The following case was cited: "A disease of a greenhouse plant is in a specific case due to the attacks of a fungus which kills the leaf in distinct spots. These spots are frequently so numerous as to entirely destroy the plant. The disease develops naturally under certain rare conditions in the greenhouse. These conditions, however, can be produced artificially in the case of individual plants, and in such instances the spores of the fungus, which are always present in the house, will infect and in a short time produce the characteristic injuries. Now, by following this method for several months and causing the new leaves to become infected as they appear, the plant eventually gets into a condition when it can no longer resist the fungus. If the leaves are all cut off at this time the new leaves will be attacked as fast as they appear, without taking any precautions to surround the plant with conditions that will make it susceptible. The cumulative effects of the fungus, in other words, has probably resulted in bringing about the metabolic changes that at the outset had to be brought on by conditions of light, heat and moisture."

Mr. V. K. Chesnut presented a paper entitled 'The Poison of the Black Nightshade (*Solanum nigrum*. L.),' being a brief account of solanine. This glucoside-like alkaloid, although not a remarkably poisonous substance, is the active constituent of the plant. It is present in the leaf and berry, but in varying amounts according to conditions of growth. It is greatest in heavy-scented plants, but in some the amount is so small that the berry is edible, and has even an attractive taste. Severe cases of poisoning have, however, attended the use of the plant; so it can not be recommended as a food. The variation in chemical composition was attributed to the cosmopolitan nature of the plant which enables it to thrive well in different environments. Attention was called to the fact that the berries of *Solanum triflorum*, a native of the Great Plains region, was poisoning cattle in Nebraska.

F. A. Lucas,
Secretary.

BOSTON SOCIETY OF NATURAL HISTORY.

A General Meeting was held April 21st, fifty-nine persons present.

Mr. Herbert Lyon Jones spoke of the biological adaptations of our seashore plants, and defined the physiological differences between them and our ordinary plants. The classes and characteristics of seashore plants were mentioned, the vertical position of the leaves and the reduction of leaf surface noted.

The danger of too great a quantity of salt in the tissues of seashore plants is reduced by changes which reduce transpiration of water; adaptations follow the needs of plants; the fruit is especially adapted to withstand the effects of water. The differences and similarities between the plants of the seashore and desert plants were pointed out and illustrated by a series of lantern slides.

Samuel Henshaw,
Secretary.

NEW BOOKS.

The Chances of Death and other Studies in Evolution. Karl Pearson. London and New York, Edward Arnold. 1897. Vol. I., pp. xi + 388. Vol. II., pp. 460. $8.00.

Contribution towards a Monograph of the Laboulbeniaceæ. Roland Thaxter. Cambridge University Press, John Wilson & Son. Pp. 398. 26 Plates.

Sight. Joseph Le Conte. New York, D. Appleton & Co. 1897. Pp. xvi + 312. $1.50.

An Essay on the Foundations of Geometry. Bertram A. W. Russell. Cambridge University Press. 1897. Pp. xvi + 201.

The Induction Coil in Practical Work. Lewis Wright. London and New York, The Macmillan Co. 1897. Pp. viii + 172.